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Maryland Agricultural College

AND

Experiment Station.

Short Winter Course in Agriculture.

1896.

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H. G. WELTY, *Professor of Physics and Applied Mathematics.*
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DR. ROBERT WARD, F. R. C. V. S.
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* Leave of absence granted for one year to pursue special course at Columbia College, New York.

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A SHORT WINTER COURSE IN AGRICULTURE.

(Founded upon a system organized by the Missouri State University.)

Realizing the great value of correct methods, based upon scientific investigation, in the profession of agriculture, and being animated by an earnest desire to do something to overcome in a measure the adverse results attendant upon the pursuit of the calling incident to the present methods in vogue, the Agricultural College of Maryland, through its departments of education and experimentation, has deemed it advisable to start a short winter course in agriculture for the purpose of placing within the reach of those not having the time or money to pursue the regular course the opportunity of gaining the information so necessary for the successful prosecution of their work.

It is hardly to be expected that much more can be done for the coming winter than the presentation of a scheme for this work, and to offer to the young men of Maryland who cannot afford the time or money for a full College course an opportunity to fit themselves more thoroughly for the practice of the profession to which they have devoted their lives.

The course will be open to all young men over 16 years of age. No entrance examination will be required. The aims of the course will be to give the largest amount of purely practical information about farming in all its phases: Dairying, Gardening, Fruit-growing, Veterinary Science, Carpentry, Blacksmithing, Culture of Crops, Fertilization, Harvesting and Marketing. The instruction will be given principally through lectures; the practical features will be carried on in the fields, laboratories, greenhouse, dairy buildings and barn. The course will be of six weeks' duration—five days to the week and three lectures per day—commencing Monday, January 20, 1896. Practical work in the laboratories will also claim a portion of each day.

OUTLINE OF LECTURES FOR WINTER COURSE IN AGRICULTURE.

By W. T. L. TALIAFERRO, PROF. AGRICULTURE.

Farm Crops (eight lectures).

1. Cultivation as affecting

- a) The physical condition of the soil;
- b) The chemical condition of the soil;
- c) The water content of the soil.

2. Plant Feeding and the Rotation of Crops.

3. Clovers—

- a) Varieties;
- b) Uses;
- c) Cultivation.

4. Small Grains—

- a) History;
- b) Cultivation;
- c) Harvesting;
- d) Fertilizing.

5. Corn—

- a) History;
- b) Cultivation;
- c) Harvesting;
- d) Fertilizing.

6. Grasses—

- a) Varieties;
- b) Cultivation;
- c) Harvesting;
- d) Fertilizing.

7. Silage and Forage Crops.

8. Potatoes and Root Crops.

Drainage (five Lectures).

1. a) Lands which need drainage;
b) Indications of too much water;
c) Sources of surplus water;
d) Objections to too much water.
2. The effect of drainage on the physical condition of the soil.
3. The effect of drainage on the chemical condition of the soil.
4. Drainage as affecting particularly the washing of lands and the health of localities.
5. Methods and cost of drainage.

Breeds and Breeding (ten Lectures).

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| 1. Breeds of Horses. | 6. Heredity. |
| 2. Breeds of Dairy Cattle. | 7. Variation. |
| 3. Breeds of Beef Cattle. | 8. Correlation. |
| 4. Breeds of Sheep. | 9. In-and-in Breeding. |
| 5. Breeds of Swine. | 10. Cross Breeding. |

Stock Feeding (eight lectures).—The composition and digestibility of the different feeding stuffs. What is meant by a well-balanced ration and the calculation of such rations with given materials. Feeding for maintenance, fat, butter, eggs, wool, milk. The effect of food on quality. The preservation and preparation of coarse fodders. Ensilage. Steaming and cooking food, etc., etc. Not only will the theory be studied, but a careful carrying out of the theory in practice will be the features of the course. By Prof. H. J. PATTERSON.

Manures (five lectures).—The best methods of preserving and applying farm manure. The relative value of the different manures and fertilizers. The maintenance of soil fertility. The place of lime in the farm economy. By Dr. H. B. McDONNELL.

Tobacco (six lectures).—The plant bed, culture, harvesting, curing, marketing, and effects of fertilizing elements upon the quality. By Prof. H. J. PATTERSON.

II.—DAIRY HUSBANDRY AND DAIRY CHEMISTRY.

In order to give students the opportunity of pursuing the subject of dairying in a practical way and under the latest and most approved methods, arrangements have been made with Director Robert H. Miller for the use of the Experiment Station creamery and creamery appliances.

This outfit consists of a new dairy building containing a main work room, a wash room, an engine room, a room for deep and shallow setting of milk, a cream ripening room, a refrigerator, a milk testing room, an ice house, and an office. This building is fitted up with the necessary apparatus for practical work and illustrating different systems of dairying.

Ten Lectures. Dairying as adapted to different sections of Maryland. Selling of milk, cream, butter and cheese. Summer or winter dairying. Dairy or creamery. Dairy and creamery management. Methods of creaming. Ripening of cream. Churning, working, salting and preparing butter for market. Judging of butter. Preservation of milk and butter-milk. Sterilization. Statistics of products and consumption. The chemistry of milk, butter and cheese. Milk testing.

In addition to the lectures, the various operations will be illustrated in the laboratory and creamery and each student will be expected to take part in the practical work, and perform and become familiar with each operation. By Prof. H. J. PATTERSON.

III.—HORTICULTURE.

Fifteen Lectures. Construction and management of green house, hot beds and cold frame-making, cuttings, buddings, grafting, pruning. Cultivating orchards and small fruits. Spraying for insects and fungus diseases. Originating and improving varieties of fruits and vegetables. Cross-fertilization, selection and cultivation. Fruit raising and commercial gardening. Conditions of success as to soil, culture, pruning, propagation, varieties and fertilization. The markets, their requirements and opportunities. By Prof. J. S. ROBINSON.

IV.—AGRICULTURAL CHEMISTRY.

Five Lectures. Soils: their formation, classification and properties. The mineral constituents of plants and their bearing on plant growth. The best plan of supplementing them when needed for plant growth. By Dr. H. B. McDONNELL.

V.—PLANT PHYSIOLOGY.

Five lectures. The life and function of the cell. The absorption of incombustible inorganic matter and its conversion into the body of the plant. Assimilation, conversion, transportation and storage of organic matter. The nature of the energy which lends itself to the performance of this work. By Dr. M. P. SCOTT.

VI.—SANITARY SCIENCE.

Farm Hygiene: air, water, food, wholesome and injurious to health. Microscopic examination of same. Impurities and adulterations in food. Means of guarding against preventable diseases. By Dr. M. P. SCOTT.

VII.—ECONOMIC ENTOMOLOGY.

Five lectures. The lectures will treat of those insects injurious to fruit, farm and vegetable crops and animals, their habits and life, and the best methods of exterminating them. By Dr. SCOTT.

VIII.—FARM ACCOUNTS.

Six lectures. The best methods of keeping them. The necessity of this in these times of close competition and small profits. By Prof. HARRISON.

IX.—FARM BUILDINGS AND ARCHITECTURE—BRIDGE CONSTRUCTION.

Eight lectures. Designing the various buildings on the farm with special reference to economy and convenience. In this the student will not only design, but calculate the amount and cost of material, and make all specifications necessary for a proper completion of the work.

Bridge work will consist of designs of cheap and durable structures, with a knowledge of all the practical details of the same. By Prof. H. G. WELTY.

X.—CARPENTRY AND BLACKSMITHING.

Ten exercises of two and one-half hours each. A knowledge of this is very important to the agriculturist of this day. The equipment for this instruction is complete. The industrious, eager seeker after knowledge will accomplish much in the line of this work in the time allotted.

Practical Lessons in Carpentry.—Care and use of tools.

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| 1. Sawing and planing. | 7. Tap splice. |
| 2. End mortise and tenon. | 8. Splayed splice. |
| 3. Half mortise and tenon. | 9. Glue joint. |
| 4. Pin mortise and tenon. | 10. Housed mortise and tenon. |
| 5. Outside mortise and tenon. | 11. Window sash. |
| 6. Key mortise and tenon. | 12. Four-panel door. |

Practical Lessons in Blacksmithing.—Mechanism of, and care of forge and smith's tools. Preparation of forge for fire. Building and managing the fire and fluxes. Forging, bending, welding.

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| 1. Eye bolt. | 7. Right-angular bent sheet. |
| 2. Staple. | 8. Knee. |
| 3. Hook. | 9. Chain. |
| 4. Chain links. | 10. Horse shoe. |
| 5. Double eye. | 11. Shrink on a tire. |
| 6. Stirrup. | 12. Welding and tempering. |

By Lieut. J. D. FORD, with assistants.

XI.—VETERINARY SCIENCE.

Fifteen lectures. A study will be made of the anatomy and physiology of the domestic animals. All of the more common troubles, with the proper treatment, will be given. In short, the aim will be to give the attentive student such information as will fit him to combat successfully the more common diseases to which domestic animals are

subject. During the term it is desired to make a test for tuberculosis in the College herd with Koch's lymph. The students will be required to be present and assist in the test. The course will be conducted by Dr. WARD, State Veterinarian.

XII.—CITIZENSHIP.

Ten lectures. Fundamental principles of our government. The State and the Nation. Local government in Maryland. Taxation and land values. The State and education. Representation. Elections and election laws. Farm deeds and mortgages. Contracts and sales. Legislation in its relation to the farmer.

The object of this course will be to prepare the student for the active duties of citizenship and to show him the best and safest course for him to pursue for the preservation of his individual interests and those of his community. Any special course, such as above outlined, would be incomplete without some instruction in this important subject. By Prof. R. H. ALVEY.

SPECIAL LECTURES ON IMPORTANT TOPICS.

We are negotiating for a series of lectures by Professor WHITNEY, on Soil Analyses, assisted by SOTHORON KEY, B. S.

EXPENSES FOR THE COURSE.

Only a nominal charge of five dollars (\$5) will be made for the course. Students will be expected to board in the neighborhood. Good board can be secured for \$4 per week. The entire expenses for the course of six weeks, including traveling expenses, should not be over \$50.00

For further particulars apply to

R. W. SILVESTER,

*President Maryland Agricultural College,
College Park, Md.*

Or

ROBERT H. MILLER,
*Director Experiment Station,
College Park, Md.*

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